**Microsoft .NET Technical Experience Evaluation Questionnaire**

Full Name:

Date:

Please note that the completion of this assessment/questionnaire should solely rely on your own experiences, knowledge, and capabilities. The use of ChatGPT or any AI assistance is strongly discouraged. Any indication of AI usage may result in the termination of the hiring process.

**Q1)** Name three software projects you took part in the last three years? Please mention your role in the project as well as the project duration. (Please write three projects at most.)

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| --- | --- | --- | --- | --- | --- |
| **Name of the project** | **Date/ Duration** | **Your role** | **Client** | **Team Size** | **Lines of code you developped (approx)** |
| Platts Connect | 12 months | Development | S&P Global | 11 | More than 2500 |
| Tombstone & Filings Hub | 24 months | Development & Team Lead | Barclays | 11 | More than 3000 |
| Futura | 30 months | Development & Team Lead | RCBC bank, Land bank | 15 | More than 5000 |

**Q2)** Which technologies did you use in the projects you mentioned above?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the project** | **Prog. language** | **Database** | **Operating system** | **Reporting system** |
| Platts Connect | C#, Javascript, Typescript, ReactJS | MS SQL | Windows & Linux | PowerBI |
| Tombstone Hub & Filings Hub | C#, Javascript, Typescript,  ReactJS | MS SQL | Windows & Linux |  |
| Futura | C#, VB.Net, Javascript, Typescript,  Angular1 | MS SQL | Windows | SAP BO, PowerBI |

**Q3)** List projects where you have used AngularJS with project duration and your role in project.

|  |  |  |
| --- | --- | --- |
| **Name of the project** | **Duration** | **Role** |
|  |  |  |
|  |  |  |
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**Q4)** Have you ever worked in a project where there were branches of development in a source control application? If yes, what was the name of the project, how many branches were in use?

**Ans:**Yes, In platts connect and Tombstone Hub & Filings Hub I have created many branched for development. Ideally I create development branch per feature I want to develop.

**Q5)** Have you ever integrated with a legacy application other than using web services and stored procedures? If yes, please indicate the project and the legacy systems you integrated with and mention the integration methodolodgy and protocols used.

**ANS:** Yes in one of my welth management application called Integra which we were upgrading to New Technology here we consumed different DLLS from lagacy application using BFF pattern using HTTPS protocol for different new platform intorduced.

**Q6)** Did you ever use cryptography in your projects? If yes, which algorithms did you use, for what purpose and what was your key management strategy such as the storage place for keys?

**ANS:** Yes, I have used aes cryptography and we used to store the keys in AWS secret manager.

**Q7)** What are the things you would do or avoid doing for improving performance of a web application? Please list top 5 most important things for you.

**Ans:** 1. Server side rendering. 2. Budling & minification. 3. Lazy loading. 4. Store static files in CDN 5.Caching.

**Q8)** What are the things you would do or avoid doing for improving security of a web application? Please list top 5 most important things for you.

**Ans:** 1. Implement CORS. 2. Implement OWASP and be updated with security vulnerability in OWASP. 3. Implement Authentication and Authorization. 4. Secure & encrypted data transfer. 5. Regular security Audit.

**Q9)** Assume that you are developing a web application that shows currency exchange rates for a bank web site. The rates are stored in an IBM Mainframe in the bank and rates are available through web services. Each time a user accesses the rates page, the page makes a request to the mainframe. This generates too much load on the mainframe. Especially most of the time the rates delivered is the same. But at the same time rates may fluctuate within the day and if rates have changed the web page should not display the cached values but make another request to the web service. The rates table at mainframe supports triggers where each update to the rates table can invoke a trigger where the trigger may further call a web service. How would you design such a caching architecture and make sure it is invalidated on rate changes? Please explain by drawing a diagram.

Here we should create layers of application for saperation of concern. So, we will have below layers.

1. Presentation Layer: A web application to display rated and from where client can interact with services.
2. Caching Layer: This is where caching logic will reside and it is only responsible for adding, modifing and deletion of cache. Since we need to update the UI with updated rated the cache layer and presentation layer will be connected using webhook.
3. Infrastructure layer: This is where the interaction with Mainframe happens and who is responsible for sharing the latest rate with cache layer. Since we are not sure when the rate will change we can implement pub/sub pattern where the mainframe will publish an event and infrastructure will consumen the event.

Work Flow:

1. User request cache layer for the rates.
2. Caching layer checkes if it has the cached rates it will return the rates else it will call the Infrastructure layer for rates from mainframe.
3. Infrastructure layer will call the mainframe web service for rates and pass it to cache layer.
4. Cache layer will store the rates in cache.
5. On rate update in mainframe the mainframe will raise an event with updated rates as payload.
6. The Inrastrucutre layer will consume the event and share the updated rated to cache layer.
7. Cache layer will trigger the web hook notification.

Client

Mainframe system

Infrastructure Layer

Caching Layer